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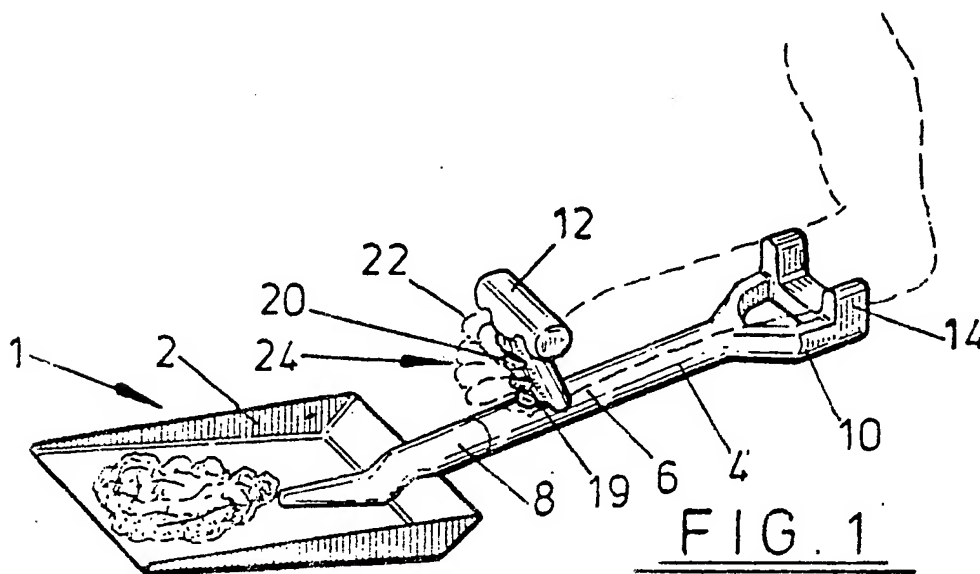
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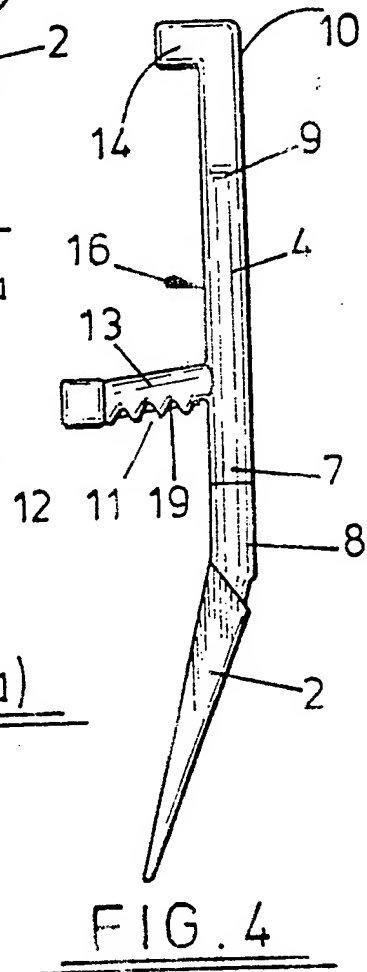
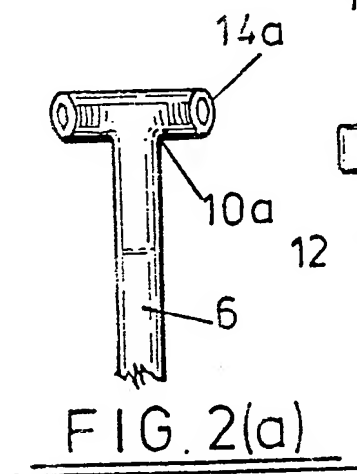
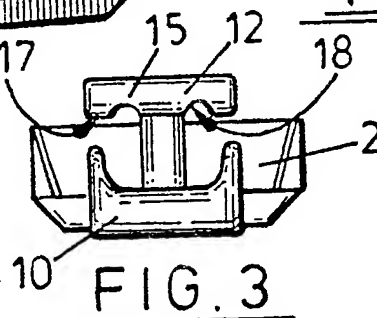
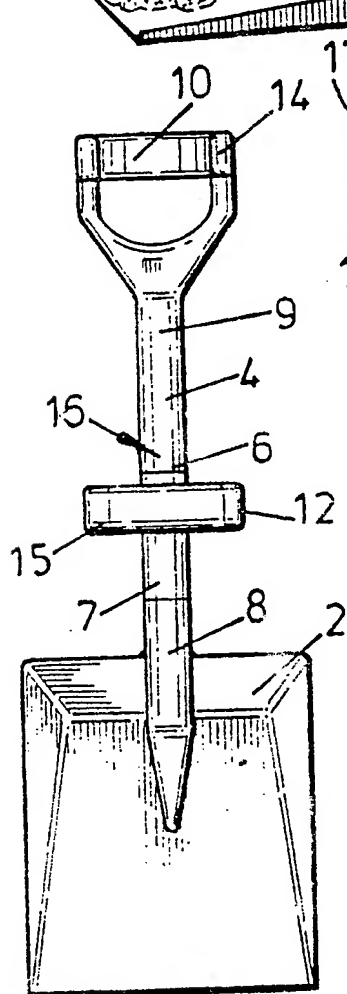
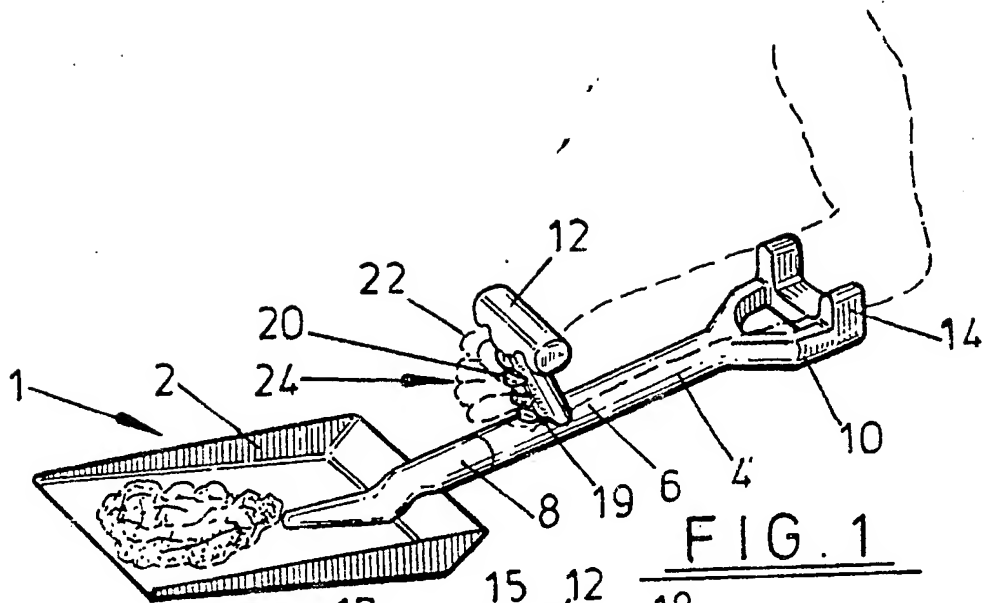
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(54) Handle for particulate material handling implement

(57) A particulate material handling implement 1 for use with only one arm comprises a head portion 2 and a handle 4. The handle 4 comprises an elongate shaft 6 connected at one end thereof to the head portion 2. A forearm support member 10 is provided at a second end of the shaft 6 and a grip member 12 is positioned between the forearm support member 10 and the head portion 2. The grip member 12 projects from the shaft 6 and is formed and arranged with the forearm support member 10 so that the handling implement 1 may be used one-handed with the grip member 12 gripped in one hand 24 and the shaft 6 extending along the forearm such that substantially all the forearm is in engagement with the forearm support 10 when lifting the implement 1. The head portion may be in the form of a shovel, a brush, a fork, a rake or a hoe.



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PARTICULATE MATERIAL

HANDLING IMPLEMENT

The present invention relates to a particulate material handling implement such as a shovel or a spade suitable for use with only one arm.

Shovels and spades are used in many applications from the building site - mixing cement, to the garden - spreading compost and in the house for shovelling coal onto a fire. Conventional shovels and spades by nature of their design, necessitate the use of both hands in their use thereby preventing the use of one of the hands to open coal bunkers, waste disposal bags or the like. Persons using shovels or spades often attempt to use them one-handed but only with limited success due to the fact that the weight of the shovel as well as any load supported thereon has to be supported by the person's wrist, thereby restricting the carrying capacity.

It is an object of the present invention to avoid or minimise one or more of the above disadvantages.

The present invention provides a particulate material handling implement suitable for use with only one arm, which implement comprises a head portion and handle means, said handle means comprising an elongate shaft connected at a first end thereof to said head portion; a forearm support member at a second end of said elongate shaft; and a grip member on said elongate shaft

intermediate said forearm support member and said head portion, said grip member projecting from said shaft, said grip member and said forearm support member being formed and arranged so that said particulate material handling implement can be used one-handed with said grip member gripped in one hand with the shaft extending along the forearm, and said forearm support member engaging the forearm so as to maintain substantially said forearm in engagement with said forearm support member when lifting said implement.

Various forms of implement may be used in accordance with head portions suitable for a wide variety of particulate material handling operations such as shovelling, digging, sweeping, brushing, forking, raking, hoeing, etc.

Thus with for example a shovel implement of the invention people may be able to move soil, put coal on fires, spread fertilisers and the like using only one arm, leaving the other arm free to open bins, plastic bags or the like to facilitate loading or emptying of the head portion.

The present invention is also particularly suitable for the old, the infirm or the disabled as it allows their free arm to be used to support themselves, hold a walking stick, or to hold onto a fixed support.

It will of course be appreciated that the strength, particularly of the wrist, in the old is substantially less than that of a younger able person. The increase in one handed carrying capacity afforded by the invention will therefore be particularly useful in this age group.

In a shovel implement of the invention the head portion is generally dished or similarly concavely formed to facilitate scooping up of particulate material or the like. Desirably the head portion is provided with turned upside edge portions formed and arranged for increased containment of said loose material on said blade portion.

In a spade implement of the invention, a flatter, more spade-like head portion is formed and arranged for the cutting and digging of earth or the like. Conveniently the top of the spade-form head portion is provided with an edge means formed and arranged for engaging the underside of a user's foot so as to facilitate the action of a blade portion of said head portion into the material being dug.

Whilst the scoop or blade-form head portions will usually have a generally rectangular shape, other forms of blade may also be used e.g. blades having a generally arcuate distal edge.

The forearm support member conveniently comprises a handle having a known 'D' or 'T' shaped configuration provided with laterally and upwardly extending portions formed and arranged to provide a cradle for the upper part of the user's forearm proximal the elbow so as the support the forearm against displacement laterally of the shaft.

The use of a handle having a 'D' or 'T' type configuration conveniently allows the shovel of the invention also to be carried and used in the conventional manner of shovels and spades.

The forearm support member may additionally or alternatively be provided with generally strap-form fastener means formed and arranged to hold the forearm against lateral displacement. Said strap may conveniently be provided with a quick release type fastener such as a hook and loop fastener.

Any suitable grip member which can be securely gripped in the palm of the hand may be used in an implement of the invention. In general the grip member will comprise a boss or like protuberance having a length similar to a hand width or somewhat greater e.g. from 7 to 10 cms. Advantageously the boss is provided with an enlarged diameter head at its distal end for retaining the main body of the boss in the palm of the user, the clenched hand nestling behind the head, thus preventing the grip

member from slipping out of the user's hand and allowing greater loads to be carried on the head portion of the implement. The grip member head may be more or less bulbous, in the form of a simple cross-member, or any other shape providing a more or less comfortable abutment to the upper edge of the user's hand.

The grip member is desirably positioned at a position along the elongate shaft spaced from the forearm support member along the elongate shaft so that a user gripping said member can engage his forearm more or less comfortably within the forearm support member with the forearm extending along the shaft. Desirably the distance between the grip member and the forearm support member is generally similar in length to a user's forearm, generally 280mm to 320mm e.g. around 300mm.

Preferably said grip member is positioned along said elongate shaft between said head portion and said forearm support member such that when the head portion is empty said forearm support member lightly engages a user's forearm. Where heavy loads are to be carried it may be desirable though to have the grip member closer to the head portion so as to reduce the lifting effort required. It will of course be understood that with said grip member in such a position said forearm support member may not positively engage said user's forearm when said head portion is empty. It will also be appreciated that light bulky materials may be

conveniently carried with the grip member mounted on said shaft closer to said forearm support member to obtain a light positive forearm engagement when the head is empty.

In general the grip member is formed integrally with or is fixedly secured to the elongate shaft. Conveniently though the grip member is connected to the elongate shaft through an adjustable mounting formed and arranged to be displaceable along said elongate shaft for securing at different separations from the forearm support member whereby a plurality of different users of different forearm sizes may use the shovel.

Preferably the grip member is provided with a plurality of indentations shaped for engagement with the fingers of the user's hand to provide a more secure and/or more comfortable grip.

It will of course be appreciated that the invention may also be used in a two handed mode similar to the method used for a conventional shovel or spade. Advantageously the cross-piece of a T-shaped head portion of the grip member is disposed at right angles to the elongate shaft to make it more comfortable to hold in the two handed mode.

The handle means comprising the forearm support member, the grip member and the shaft may be made of



conventional materials such as wood, metal or may be of a lightweight robust plastic in a one piece moulding.

It will of course be appreciated that the grip member may project from either the underside or top side of the elongate shaft surface with the elongate shaft being disposed along either the top side or the underside of a users forearm, respectively.

Further preferred features and advantages of the present invention will appear from the following detailed description given by way of some preferred embodiments illustrated with reference to the accompanying drawings in which:-

Fig. 1 is a perspective view of a one handed shovel of the invention in use carrying some earth;

Fig. 2 is a plan view of the one handed shovel of Fig. 1;

Fig. 2a is a detailed plan view of the forearm support member of another embodiment;

Fig. 3 is an end view of the one handed shovel of the invention; and

Fig. 4 is a side view of the one handed shovel of the invention.

Fig. 1 shows a one handed shovel of the invention generally indicated by reference number 1. The shovel 1 comprises a blade 2 attached to a handle 4. The handle 4 is a generally round section longitudinal shaft 6, connected at a first end 7 thereof into a female tubular

mounting portion 8 of said blade 2. The second end 9 of said shaft 6 is connected to a forearm support member 10. Intermediate said first and second shaft ends 7, 9 is a grip member 12.

As will be seen from the plan view in Fig. 2, said forearm support member 10 comprises a handle of the generally known 'D'-shape and configuration with the provision of two laterally and upwardly extending forearm location lugs 14, so as to support the forearm against displacement laterally of the shaft.

Fig. 2a shows a second preferred embodiment of said forearm support member 10 which comprises a 'T'-shaped handle 10a of the generally known configuration with laterally and upwardly extending forearm location lugs 14a provided thereon.

The grip member 12 of the preferred embodiment is a 'T'-shaped handle wherein the upright 13 of the 'T' extends out of the top side 16 of the shaft 6 at approximately right angles thereto but with a small forward inclination towards the blade 2 to make gripping of the grip member 12 more comfortable in use. The upright 13 is provided with a gripping portion 11 (Fig. 4) comprising a plurality of finger engagement indentations 19 to facilitate the holding thereof. The cross-piece 15 of the 'T'-handle is at right angles to the shaft 6 and the underside 17 of the cross-piece 15

is provided with indentations 18 so that in use of the shovel 1, the thumb 20 and forefinger 22 of a user's hand 24 (Fig. 1) can fit into the indentations 18 thereby making the handle 10 more comfortable and convenient to use and preventing the grip member 12 from slipping out of the user's hand 24.

It will be appreciated that various modifications may be made to the above described embodiments without departing from the scope of the present invention. Thus for instance the blade may take the form of a fork like portion or any other suitable garden or agricultural implement head portion as desired.

CLAIMS

1. A particulate material handling implement suitable for use with only one arm, which implement comprises a head portion and handle means, said handle means comprising an elongate shaft connected at a first end thereof to said head portion; a forearm support member at a second end of said elongate shaft; and a grip member on said elongate shaft intermediate said forearm support member and said head portion, said grip member projecting from said shaft, said grip member and said forearm support member being formed and arranged so that said particulate material handling implement can be used one-handed with said grip member gripped in one hand with the shaft extending along the forearm, and said forearm support member engaging the forearm so as to maintain substantially said forearm in engagement with said forearm support member when lifting said implement.

2. An implement as claimed in claim 1 wherein said head portion is selected from a shovel, a brush, a fork, a rake and a hoe, head.

3. An implement as claimed in either claim 1 or claim 2 wherein said head portion is concavely formed for the scooping up and containment of particulate material.

4. An implement as claimed in claim 2 which has a spade head portion wherein said head portion has at the top

thereof an enlarged edge means formed and arranged for engaging the underside of a user's foot in use thereof.

5. An implement as claimed in any one of claims 1 to 4 wherein said forearm support member is provided with laterally and upwardly extending portions formed and arranged to provide a cradle for the upper part of the user's forearm proximal the elbow thereby laterally to support to the forearm.

6. An implement as claimed in any one of claims 1 to 5 wherein said second end of said elongate shaft has a generally 'D' - or 'T' - type configuration.

7. An implement as claimed in any one of claims 1 to 6 wherein said forearm support member is provided with generally strap-form fastener means formed and arranged to hold the forearm of a user against lateral displacement on said support member.

8. An implement as claimed in any one of claims 1 to 7 wherein said grip member comprises a boss having an enlarged head at its distal end for retaining the main body of the boss in the palm of the hand of a user.

9. An implement as claimed in claim 8 wherein said boss is generally 'T' - shaped.

10. An implement as claimed in any one of claims 1 to 9

wherein grip member is provided with adjustable mounting means formed and arranged to be displaceable along said elongate shaft.

11. An implement substantially as described hereinbefore with reference to Figs. 1 to 4.